

Homework Format Essentials

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In order to best achieve compliance with the "Required Homework Format," the department has prepared this abstract of the most fundamental issues. Please refer to the document "Required Homework Format" for complete information as well as the attached Example.

A homework problem or assignment that does not adhere to the required format will have points deducted from the problem's or assignment's point value. At the instructor's discretion, the amount of the deduction may be from 20% to 100% of the value (regardless of the correctness of the work submitted).

Homework Format Essentials

1. Homework and handwriting must have a professional appearance. Your work must be legible and neat. Writing must be of sufficient darkness and size to be easily readable. Your work should clearly and concisely show your analysis, results, conclusions, and recommendations.
2. "Engineering paper" (National 42-182, 5 square or equivalent) is required unless the instructor has approved the use of "lined paper". All paper must be of the same size, ruling and color. Assignments must be stapled if they consist of more than one page or secured with binder-clips, etc. Papers should NOT be folded.
3. The following information appears on the first page ONLY (*see attached example*): (1) name (First Last), (2) course and section, (3) assignment identification information (list either the specific problems or the assignment number), (4) date due.
4. On subsequent pages, place only the problem number (e.g., Felder 2-5), your initials, and pagination information. All sheets are consecutively numbered in the format: "2/6" (e.g., page 2 of 6 total pages).
5. Start each problem on a new page unless several short problems can be displayed on a single page.
6. Strike-outs and obvious erasures are not allowed.
7. All straight lines must be drawn with a ruler, triangle or straightedge. This includes lines used for figures and sketches, analysis of units, units specification, solution underlines, etc.
8. Templates for drawing frequently used shapes (squares, circles, etc.) are recommended.
9. Circles and other curved shapes should be drawn with a template or other instrument (e.g., French curve, ship's curve, etc).
10. Freehand curves and freehand straight lines are not acceptable.
11. Final answers must be clearly identified by either underlining the result twice or "box the result" (as shown below). NOTE: Final answers consist of "symbol", "value", and appropriate "units". Final answers DO NOT consist of only a numerical value.

$T_1 = 102.3 \text{ K}$
12. When you report intermediate calculations or values, avoid writing down excessive significant figures from your calculator. Generally 4-5 significant figures is appropriate.
13. Data items such as physical constants, molecular weights, conversion factors, etc.) should be written down and entered in calculations using 4-5 significant figures.
14. Final answers should reflect no greater than 0.1% accuracy (i.e., 3-4 significant figures).

15. The “railroad track method” (also called “factor-label method”) must be used in all calculations.
 Note: These methods consist of a single horizontal line with a single numerator and single denominator. Parenthesis are ONLY used to groups sums and differences.
16. Units must be properly cancelled in all calculations.
17. The “Given-Find-Solution-Answer” (GFSA) problem solving methodology is required.
- Given: Restate significant information from problem statement. Include the given problem sketch (if provided) only if needed to clarify the problem statement.
 - Find: State unknowns that are to be determined and assign a symbolic representation for each. For example: *Find the outlet temperature, T_{out}*
 - Solution:
 - Draw an appropriate sketch showing the major features of the problem.
 - Draw additional sketches to show details or other features of the problem as necessary.
 - Use a nomenclature that is convenient and well accepted.
 - State assumptions.
 - List required physical properties and other related data (stating sources).
 - Reference any tables and figures used to determine properties.
 - Write governing equation(s).
 - Simplify equations algebraically. Do not substitute values into equations until the equation is being solved for the variable of interest.
 - Substitute known values for symbolic variables into final equations. Solve for unknown quantities (complete calculations).
 - Work problem in the unit system given. Do not needlessly convert from one system to another and then back to the original system. *Eng* → *SI* → *Eng*.
 - Underline major intermediate answers.
 - Answer: After complete calculations, highlight answer in box or double underline. Include symbol, answer, and units in your answer. **THINK and REFLECT!! What do your solutions indicate? Are your results reasonable?**
18. Pages consisting of “landscape mode” tables and figures are oriented such that the holes are located on top edge (when viewing the table or figure).
19. When drawing graphs for homework, you may use graphing software (such as MS Excel™ other approved graphing programs) or provide hand drawn graphs. Hand drawn graphs should be drawn neatly using straight edge and curve guide instruments. Freehand curves are not allowed.
20. Label (via the citation) graphs and figures. Provide the figure number and a *descriptive title* centered underneath the figure. Identify sources for figures or graphical information external to the assignment.
21. When providing tabular information, tables must be numbered and have a *descriptive* title. Center the table number and title above the body of the table. Generally you should center column headings and column data. When the data has a decimal point, align values “on the decimal point.”
22. You should reference the source of all data and information used in your solution except for data contained in the problem statement.
23. References must contain enough information so that the professor or your supervisor could easily look up your referenced data. For example, (Felder, Table B.1) or (Perry's Handbook, 7th Ed, p. 15-4) are sufficient if unambiguous. Web references should contain a complete URL and provide the date accessed, for example: <http://www.ultrasmartstudents.com/cornflakes.html> (January 13, 2008)

A Dozen Biggies

1. Homework and handwriting must have a professional appearance.
2. Staple assignment pages together. If the assignment is large, use a binder clip.
3. Problems must be properly identified
4. Strike-outs and obvious erasures are not allowed.
5. Draw all straight lines with a ruler, triangle or straightedge.
6. Freehand curves and freehand straight lines are not acceptable.
7. Clearly identify final answers by underlining the result twice or “box the result”. This includes the symbol representing the unknown, the numerical result and the units.
8. Avoid writing down excessive significant figures from your calculator. Generally, 4-5 significant figures is appropriate.
9. The “railroad track method” (also called “factor-label method”) must be used in all calculations. Units must be properly cancelled in all calculations.
10. The “Given-Find-Solution-Answer” (GFSA) problem solving methodology is required.
11. Do not needlessly convert from one system to another and then back to the original system.
12. Properly reference the source of all data and information used in your solution except for data contained in the problem statement.